

ASSIGNMENT 1

Textbook Assignment: "Planned Maintenance System and Fault Isolation," chapter 1, pages 1-1 through 1-24; and "Liquid-Cooling Systems:" pages 2-1 through 2-19.

- 1-1. The Planned Maintenance System provides a standard means for which of the following tasks relative to complex mechanical, electrical, and electronic equipments?
1. Planning
 2. Controlling
 3. Scheduling
 4. All of the above
- 1-2. The PMS has what total number of shipboard maintenance categories?
1. One
 2. Two
 3. Three
 4. Four
- 1-3. Which of the following elements is a primary ingredient of the PMS Program?
1. Ship, shipyard, or system safety scheduling
 2. System fault-isolation procedure
 3. Redundant tasking eliminations
 4. Testing time reduction
- 1-4. What schedule normally contains the assignment of specific personnel to perform maintenance on specific equipment?
1. Cycle
 2. Weekly
 3. Monthly
 4. Quarterly
- 1-5. The Maintenance Data System has what total number of functions?
1. One
 2. Two
 3. Three
 4. Four
- 1-6. Integrated maintenance requirements are established through what type of analysis?
1. PMS
 2. Engineering
 3. Combat systems
 4. Shipboard safety
- 1-7. Which of the following types of testing is considered the highest level of testing that can be accomplished aboard ship?
1. Gun/battery alignment
 2. Combat systems
 3. Subsystems
 4. Equipment
- 1-8. What is the primary combat systems test tool?
1. SMP
 2. NIXIE
 3. OCSOT
 4. PPI X or Y
- 1-9. To diagnose and effect timely repair of faults within a fire-control system, you must fully understand fault-isolation concepts, the fault-isolation tools available to you, and the capabilities and limitations of those tools when applied to system fault isolation.
1. True
 2. False
- 1-10. Which of the following characteristics applies to a fault-isolation tool?
1. It identifies personnel requirements
 2. It identifies the proper test equipment
 3. It is difficult to operate
 4. It is easily implemented

1-11. OCSOT is what type of test?

1. On-line/off-line
2. Combat systems
3. Subsystems
4. Equipment

1-12. DSOT is what type of test?

1. On-line/off-line
2. Combat systems
3. Subsystems
4. Equipment

1-13. The systems maintenance test is an off-line test used in which of the following fire-control systems?

1. Mk 92
2. Mk 86
3. Mk 68
4. Mk 48

1-14. Diagnostic testing programs are designed to isolate malfunctions that occur in which of the following components?

1. Internal logic of printed circuit boards
2. External logic of printed circuit boards
3. Both 1 and 2 above
4. External CPU peripherals

1-15. Maintenance support documentation has what total number of general categories?

1. One
2. Two
3. Three
4. Four

1-16. TLCs are functional flow diagrams.

1. True
2. False

1-17. Fault logic procedures are generally used more rapidly by which of the following personnel?

1. Senior
2. Junior
3. Experienced
4. Inexperienced

1-18. The system function directory is an alphabetical listing of all systems functions and can be used to start the troubleshooting process when there is no particular indicator associated with a fault. With what other directory is the SFD normally used?

1. TLC
2. FLD
3. FAM
4. FID

1-19. In an SFD, data flow is normally in what direction?

1. From top to bottom
2. From bottom to top
3. From left to right
4. From right to left

1-20. The fault analysis matrixes and their associated troubleshooting procedures are related to each other and to what other test?

1. SMT
2. DSOT
3. NIXIE
4. OSCOT

IN ANSWERING QUESTION 1-21, REFER TO TABLE 1-5 IN THE TRAMAN.

1-21. Which column provides suggested troubleshooting procedures for fault isolation?

1. Seven
2. Two
3. Three
4. Four

1-22. Equipment troubleshooting documentation includes

1. relay and lamp indexes and relay lamp ladder diagrams only
2. fault logic diagrams, signal-flow diagrams, pyramid diagrams, and relay and lamp indexes only
3. signal-flow diagrams, pyramid diagrams, fault logic diagrams, and relay lamp ladder diagrams only
4. pyramid diagrams, relay and lamp indexes, fault logic diagrams, signal-flow diagrams, and relay , lamp ladder diagrams

- 1-23. To speed troubleshooting, the technician may use which of the following diagrams by answering a branching series of questions about an observed system fault?
1. Fault logic diagrams
 2. Signal-flow diagrams
 3. Pyramid diagrams
 4. Both 2 and 3 above
- 1-24. What diagram shows the signal flow from an input to an output function?
1. Signal-flow diagram only
 2. Fault logic diagram only
 3. Signal-flow diagram and fault logic diagram
 4. Pyramid diagram
- 1-25. Pyramid diagrams pertain to the sole dependency of the subassemblies essential to each function of a piece of equipment.
1. True
 2. False
- 1-26. The relays and lamps are cross-indexed by which of the following characteristics?
1. Zone
 2. Sheet
 3. Figure
 4. All of the above
- 1-27. Relay lamp ladder diagrams show the energizing paths for relays and indicator lamps that are not covered by which of the following diagrams?
1. Pyramid
 2. Fault logic
 3. Signal flow
 4. Fault analysis
- 1-28. The relay lamp ladder diagram shows which of the following components in the energizing path?
1. Transistors and switches
 2. Lamps and switches
 3. Cabling and wiring
 4. Coils and lamps
- 1-29. Cooling systems are essential to the satisfactory operation of which of the following equipments?
1. Shipboard weapons systems only
 2. Heat exchangers/transferers only
 3. Air conditioning units only
 4. All shipboard electronic equipment
- 1-30. The typical liquid-cooling system used for electronic fire-control equipment has what total number of basic systems?
1. One
 2. Two
 3. Three
 4. Four
- 1-31. Aboard ship, the initial source of cooling water is the
1. primary liquid-cooling system
 2. secondary liquid-cooling system
 3. air conditioner receptacles
 4. expansion tanks
- 1-32. If you are in an emergency situation aboard ship wherein you need to immediately locate a portable emergency hose, where would you normally find that hose?
1. In the supply room
 2. In the cook's galley
 3. In the maintenance department
 4. In the liquid-coolant machinery room
- 1-33. In types II and III liquid-cooling systems, chilled water is taken from the
1. fire main
 2. supply main
 3. alternate main
 4. secondary main
- 1-34. What is the coolant normally used in the secondary liquid-cooling system?
1. Antifreeze
 2. Fresh water
 3. Saltwater
 4. Distilled water

- 1-35. The Navy uses what total number of liquid-cooling systems?
1. One
 2. Two
 3. Three
 4. Four
- 1-36. What type of water does the type I liquid-cooling system use?
1. Seawater
 2. Distilled water
 3. Both 1 and 2 above
 4. Freshwater
- 1-37. Type II liquid-cooling systems are used in installations that cannot accept distilled-water temperatures higher than what degree Fahrenheit?
1. 85
 2. 90
 3. 95
 4. 98
- 1-38. Liquid-cooling systems have which of the following main components?
1. Coolant alarm switchboards
 2. Oxygen analyzers
 3. Demineralizes
 4. All of the above
- 1-39. What is the secondary coolant that flows through the heat exchanger?
1. Seawater only
 2. Chilled water only
 3. Seawater and chilled water
 4. Distilled water
- 1-40. What person is normally the best qualified to determine what procedure to use where extreme fouling exists and whether the job can be performed aboard ship?
1. Supply officer
 2. Operations officer
 3. Engineering officer
 4. Combat systems officer
- 1-41. The purity of what type of water inhibits electrolysis in the secondary system?
1. Sea
 2. Salt
 3. Chilled
 4. Distilled
- 1-42. Expansion tanks are identified as which of the following types of tanks?
1. Fuel or gravity
 2. Ballast or neutralized
 3. Gravity or pressurized
 4. Neutralized or fuel
- 1-43. Visual and audible alarms will actuate on the expansion tank when the fluid level is below what percent of being full?
1. 10
 2. 20
 3. 30
 4. 40
- 1-44. What type of air system is used to charge expansion tanks?
1. Low pressure only
 2. Low pressure, but with high-pressure capabilities
 3. High pressure only
 4. High pressure, but with low-pressure capabilities
- 1-45. Where is the best place to look in the expansion tank for an indication of a coolant leak in the secondary cooling system?
1. Visual alarm
 2. Flood level
 3. Sight glass
 4. Water strainer
- 1-46. What type of strainer may have a small drain on the cover to allow for draining water off before you remove the cover?
1. Single
 2. Duplex
 3. Triplex
 4. Simplex

- 1-47. What temperature-regulating valve is used when seawater is the primary cooling medium in the heat exchanger?
1. One-way
 2. Two-way
 3. Three-way
 4. Omnidirectional
- 1-48. In the three-way temperature-regulating valve, distilled water is proportioned between what total number of paths?
1. One
 2. Two
 3. Three
 4. Four
- 1-49. Two-way temperature-regulating valves are normally installed at what location on the heat exchanger?
1. In the distilled-water supply
 2. In the chilled-water supply
 3. On the cooling water side
 4. On the seawater side
- 1-50. Both the three-way and two-way temperature-regulating valves have a manual override feature.
1. True
 2. False
- 1-51. The orifice plate is found primarily in which of the following cooling systems?
1. Chilled water
 2. Coolant water
 3. Freshwater
 4. Seawater
- 1-52. When used with the chilled-water system, the constant-flow regulator is installed at what location from the heat exchanger?
1. Upstream
 2. Downstream
 3. In parallel
 4. In series
- 1-53. The amount of water that the flow regulator will pass is usually stamped whereon the regulator?
1. Bottom
 2. Side
 3. Top
 4. End
- 1-54. A flow regulator or a pressure regulator can NOT be installed backwards.
1. True
 2. False
- 1-55. A low-flow switch to monitor the overall coolant flow is normally found in which of the following cooling systems?
1. Primary
 2. Secondary
 3. Air conditioning
 4. Distillation
- 1-56. The flow of water through an orifice causes which of the following results?
1. The pressure stays the same
 2. The pressure increases
 3. The pressure fluctuates
 4. The pressure drops
- 1-57. In the venturi flowmeter, the flow rate is proportional to the difference between the
1. two taps
 2. both sides
 3. top and bottom
 4. fresh and saltwater sides
- 1-58. What is the major advantage of a rotameter over a venturi meter?
1. Size of equipment
 2. Expense of maintenance
 3. Complexity of operations
 4. Visibility of coolant

1-59. Each cooling system has what total number of distilled-water circulating pumps?

1. One
2. Two
3. Three
4. Four

1-60. On all pumps, as the output pressure increases, the output flow

1. decreases
2. increases
3. stays the same
4. varies, depending on water pressure